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Euthanasia by Organ Donation

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Euthanasia, the administration of therapy designed to hasten death, particularly in patients with intolerable suffering, has been gaining in acceptance in countries around the world, most recently in Canada. Organ donation from deceased organ donors has always been performed under the strictures of the dead donor rule, the requirement that donors be declared dead prior to any organ recovery. Recent scientific and ethical investigations, however, have questioned whether all donors, whether pronounced based on neurologic (brain death) or circulatory criteria are, in fact, dead. One potential approach to this quandary would be to abandon the fiction imposed by the dead donor rule and consider the possibility of organ donation as another mode of euthanasia. This approach would be much more precise philosophically, provide such donors with a "good death" not always possible with current organ recovery techniques, and potentially also increase organ availability.

L'euthanasie, soit l'administration d'un traitement conçu pour accélérer la mort, en particulier chez les patients souffrant de souffrances intolérables, est de plus en plus acceptée dans le monde entier, et plus récemment au Canada. Le don d'organes provenant de donneurs décédés a toujours été effectué conformément à la règle du donneur décédé, qui exige que les donneurs soient déclarés morts avant le prélèvement de tout organe. De récentes recherches scientifiques et éthiques ont toutefois mis en doute le fait que tous les donneurs, qu'ils soient déclarés morts en fonction de critères neurologiques (mort cérébrale) ou de critères circulatoires, soient en fait bel et bien morts. Une façon possible de régler ce dilemme serait d'abandonner la fiction imposée par la règle du donneur décédé et de considérer la possibilité du don d'organes comme un autre mode d'euthanasie. Cette approche serait beaucoup plus précise d'un point de vue philosophique, permettrait à ces donneurs d'obtenir une « bonne mort ,» ce qui n'est pas toujours possible avec les techniques actuelles de prélèvement d'organes, et pourrait également accroître le nombre d'organes disponibles.

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Introduction

The advent of organ transplantation, beginning with an identical twin kidney transplant in 1954, has provided new approaches for the treatment of end-stage organ failure, and saves tens of thousands of lives around the world annually.[1] However, the miracle of transplantation in many cases is predicated on the availability of organs, which often results from the heartbreaking death of their donor. The ability to obtain organs from deceased donors has been the subject of intense ethical and legal debate since before the first transplant was performed.

Medical Assistance in Dying (MAiD), whether in the form of physician-assisted death (PAS) or in a form of voluntary euthanasia, has become legal in a growing number of countries and US states (PAS only). Most recently, MAiD has been made legal in Canada.[2] Increasingly, questions about the potential for organ donation in the context of MAiD have been raised. In most instances, organ donation and euthanasia have been considered to be a two-step process, with organ donation sequentially following MAiD, and has been successfully carried out on several occasions in Europe.[3] Nonetheless, the ethics committees of a number of transplantation societies, both national and international, have refused to opine about the conjunction between euthanasia and organ donation,

1. FK Port et al, "Comparison of Survival Probabilities for Dialysis Patients vs Cadaveric Renal Transplant Recipients" (1993) 270:11 JAMA 1339.
2. See *Carter v Canada (AG)*, 2015 SCC 5; And also, *An Act to Amend the Criminal Code and to make related Amendments to other Acts (medical assistance in dying)*, SC 2016, c 3; House of Commons, Medical Assistance in Dying: A Patient-Centered Approach: Report of the Special Joint Committee on Physician-Assisted Dying (February 2016, Joint Chairs: Hon Kelvin Ogilvie & Robert Oliphant).
3. D Ysebaert et al, "Organ Procurement after Euthanasia: Belgian Experience" (2009) 41:2 Transplantation Proceedings 585.

for fear they would be seen as supportive of euthanasia itself.[4] Current legislation in Canada requires that euthanasia, in the medical context, be a voluntary act, requiring a first-person request, and confirmatory consultations. For the purposes of this discussion, we will consider *only* voluntary euthanasia.

In order to consider the possibility of organ donation as a *mode* of euthanasia, or (MAiD), however, we must first examine the current state of organ donation, and subsequently, its possible association with MAiD. This will necessitate a discussion of the "Dead Donor Rule" (DDR) in organ donation, the current status of the definition of death, whether current organ donation practices comport with the DDR, and whether MAiD might, in fact, help clarify the current situation, which, I submit, is confusing. This is not the first exploration of the possibility of combining euthanasia with organ donation, but it is unique in its focus.[5] The goal here is not to consider euthanasia as a method to increase the number of available organs for transplantation, though it might do so, but rather to clarify the process of organ donation to remove confusion as to whether donors are, in fact, dead, and to confront issues around donation, where convenient and comforting fictions have been constructed rather than dealing with more difficult realities.

I. *Definition of death*

Prior to the development of effective resuscitative techniques and artificial ventilation in the 1950s,[6] there were few issues with the diagnosis of death. Once a patient's breathing and heart function had stopped, they were dead. It was only when the ability to artificially sustain signs of life was developed that the question became unclear.

In 1968, Beecher *et al* published "A Definition of irreversible coma: report of the ad hoc committee of the Harvard Medical School to examine the definition of brain death."[7] Their primary purpose was "to define irreversible coma as a new criterion for death."[8] They gave two reasons for

4. The Transplantation Society Ethics Committee, 2014, personal communication, the author was on the TTS and ASTS Ethics Committees at the time.

5. Dominic Wilkinson & Julian Savulescu, "Should We Allow Organ Donation Euthanasia? Alternatives for Maximizing the Number and Quality of Organs for Transplantation" (2012) 26:1 Bioethics 32.

6. As an example, see, Edward Radford, Benjamin Ferris & Bertrand Kriete, "Clinical Use of a Nonogram to Estimate Proper Ventilation During Artificial Respiration" (1954) 251:22 N Eng J Med 877.

7. (1968) 205:6 JAMA 337.

8. *Ibid* at 337.

such a definition, both appearing largely pragmatic in their purpose, rather than the result of new scientific knowledge or a philosophical change.

First, the committee noted that improvements in resuscitation have resulted in patients "whose heart continues to beat but whose brain is irreversibly damaged."[9] They went on to state that "[t]he burden is great on patients who suffer permanent loss of intellect, on their families, on the hospitals, and on those in need of hospital beds already occupied by these comatose patients."[10] Secondly, they state that "obsolete criteria for the definition of death can lead to controversy in obtaining organs for transplantation."[11]

There is no doubt that the care of patients in irreversible coma is a burden on their families, their caregivers, and on healthcare resources, and this might motivate one to study whether a change in the status of these individuals (as dead rather than alive) is otherwise warranted, but it is not, in itself, justification for such a definition of death. Certainly, none of those burdens affect the biological, as opposed to the legal, status of the individual. It is also not clear that such a state is a burden on the patient themselves, as they are obviously unaware of their state. Similarly, while obtaining organs for transplantation might be a meritorious goal, that does not in and of itself justify a change in the definition of death.

At the time of the Harvard paper, the law in the United States held that death occurred when, and only when, circulation and respiration ceased. In order to allow for the diagnosis of brain death as death, legislation was proposed and uniformly adopted. The Uniform Determination of Death Act (UDDA) states that "[a]n individual who has sustained either (1) IRREVERSIBLE cessation of circulatory and respiratory functions, or (2) IRREVERSIBLE cessation of ALL functions of the entire brain including the brain stem, is dead" (emphasis added).[12]

Similar recommendations regarding the neurological determination of death were promulgated by a medical forum in Canada.[13] These recommendations, though commonly used in Canadian hospitals, have not been enshrined in legislation.

It is important to note that the legal definitions and biological definitions of death of the organism as a whole may not coincide. From

9. *Ibid.*
10. *Ibid.*
11. *Ibid.*
12. US, *Uniform Determination of Death Act,* National Conference of Commissioners on Uniform State Laws (1980) at 5, Approved by the American Medical Association on 19 October 1980 and by the American Bar Association on 10 February 1981.
13. Sam Shemie et al, "Severe Brain Injury to Neurological Determination of Death: Canadian Forum Recommendations" (2006) 174:6 CMAJ S1.

the perception of the transplant professional, there would be no benefit to recovering organs from deceased donors if their organs were biologically dead (that is, if there was no integrated function of the organ, such as the ability of the heart to beat in an organized manner, or even isolated cellular function).[14] The death of the organism as a whole is, therefore, a process, that might occur in a few minutes (e.g., brain), an hour (e.g., kidney), or many hours (e.g., skin, cornea).

II. *Current process of organ retrieval*

Organ donation can take place from either living or deceased donors. Under normal circumstances, living donors can donate one of a pair of organs, such as a kidney or a lung, or a portion of an unpaired organ, such as a lobe of the liver. For obvious reasons, living donors cannot donate an entire unpaired organ, such as the heart or the entire liver, as that would result in the death of the donor. Further, potential living donors have been denied the right to donate their second kidney, which would make them dialysis-dependent, based on the ethical principle of non-maleficence. One alternate method of living donation, imminent death donation, proposes removing a single, paired organ, such as a kidney, from a patient shortly (hours or days) before removal of life-sustaining therapy, in a setting where donation after circulatory determination of death (DCDD—see below) was unlikely to be successful.[15] Others have suggested that both kidneys could be removed in this manner, as the patient would be unlikely to die from renal failure prior to the removal from life-sustaining therapy. There are numerous regulatory concerns about this approach, not least the transplant network requirement to report and investigate all living donor deaths.

When organs are recovered from deceased donors, there are two approaches, depending on the mode of declaration of death. These techniques have been developed to simultaneously address the need for organs to be well-perfused prior to organ recovery, in order to maximize the subsequent function of the organ after transplantation, and the requirement to follow the 'Dead Donor Rule," that is, to assure the donor is, in fact, dead at the time of organ recovery.[16] We shall subsequently

14. Franklin Miller & Robert Truog, *Death Dying and Organ Transplantation: Reconstructing Medical Ethics at the End of Life* (New York: Oxford University Press, 2012) at 60; D Alan Shewmon, "The Brain and Somatic Integration: Insights Into the Standard Biological Rationale for Equating 'Brain Death' with Death" (2001) 26:5 J Medicine & Philosophy 457.

15. Paul Morrissey, "The Case for Kidney Donation Before End-of-Life Care" (2012) 12:6 American J Bioethics 1.

16. Robert Veatch, "The Dead Donor Rule: True by Definition" (2003) 3:1 American J Bioethics 10.

develop the premise that the DDR is routinely violated, and that MAiD might be an avenue to deal with this philosophical and biological problem.

In the first approach, a patient declared dead by neurological criteria (brain dead), is the donor. The donor is brought to the operating room with ventilator support and any pharmacologic support necessary to maintain adequate organ perfusion. The organs are dissected to their vascular pedicles, then flushed in situ with cold preservative solution, then removed. Once flushing begins, the ventilator is disconnected. The time of death is the time the patient was previously pronounced dead by neurologic criteria, prior to organ donation.[17]

The second technique, Donation after Circulatory Death (DCD or DCDD, previously known as donation after cardiac death, or non-heart-beating organ donation), is used for ventilator-dependent patients with severe central nervous system injury, but who have not, and are not anticipated to progress to brain death.[18] This was the only technique available prior to the establishment of brain-death criteria, but became rarely used after that time, as the quality and quantity of organs recovered from brain dead donors was superior. An improved protocol for DCDD, "controlled DCDD", became popular again in the early 2000s, because of the growing shortage of available organs, and the rarity of potential brain-dead donors.[19] These patients, or their surrogates, have made the decision to withdraw life-sustaining therapy, and also wish to become organ donors. The patients are (usually) transported to the operating room, along with their ICU care team, who retains responsibility for their end-of-life care, and ultimately pronounces death. In some hospitals, the patients' families are permitted to accompany them to the operating room if they desire, and to stay through the dying (but not organ recovery) process. The transplant team is not involved until after death is pronounced, so as to avoid any possible appearance of conflict of interest. The ventilator is removed, and the patient receives appropriate sedation to maintain comfort. Monitoring equipment assists in the determination of the cessation of circulation. A waiting period, usually 2-5 minutes, is then observed to assure the patient does not spontaneously regain circulation, after which the patient is pronounced dead.[20] Organs are then expeditiously recovered from the

17. DSC Ko & AB Cosimi, "The Donor and Donor Nephrectomy," in PJ Morris, ed, *Kidney Transplantation, Principles and Practice*, 5th ed (NewYork: WB Saunders, 2001) at 89-105.

18. Institute of Medicine, *Non-heart-beating organ transplantation: Medical and ethical issues in procurement* (Washington, DC: National Academy Press, 1997) at 1-4; JL Bernat et al, "Report of a National Conference on Donation after Cardiac Death" (2006) 6:2 American J Transplantation 281.

19. JL Bernat et al, *ibid.*

20. JL Bernat, *ibid* at 282.

donor. The potential for DCDD organ recovery is limited by the elapsed time between the removal of life-sustaining therapy and the death of the patient, as the organs may receive inadequate circulation and oxygenation during this time. Typically, livers are not procured if more than 30 minutes has transpired before death, and kidneys not after 60-90 minutes.[21] Further, those organs, such as the heart, which are particularly sensitive to oxygen deprivation, are rarely, if ever, recovered following a DCDD protocol. The fact that a few hearts have been recovered, albeit with particularly short waiting times, and in children, is the reason for the change in terminology from "cardiac" to "circulatory" death.[22]

As a larger number of organ donors are considered for DCDD protocols, the number who do not progress to death within an acceptable time frame has increased. There are screening tests purported to predict which patients will succumb in a timely manner, but these have low sensitivity.[23] None of these patients survive to leave the hospital, but they may succumb a few hours to a day or two later. Often, families, who may have struggled with the decision to approve organ donation, or have viewed donation as a way to ameliorate the grief of their loved one's death, are distressed that the patient was unable to become a donor.[24] Additionally, in my experience, because of the poor availability of operating rooms during the day, DCDD often takes place late in the evening, and frequently after the ICU staff experienced in end-of-life care have gone home. This can, on occasion, lead to less than optimal sedation by physicians unfamiliar with the concept of double effect, and concerned about hastening death in the process of assuring comfort. Thus, although the goal is for the patient to have as comfortable a death during a DCDD procedure as they would in the ICU were they not to be a donor, this is not always the case.[25]

21. *Ibid* at 283.
22. See for example, Mark Boucek et al, "Pediatric Heart Transplantation after Declaration of Cardiocirculatory Death" (2008) 359:7 N Eng J Med 709.
23. Jonathan Lewis et al, "Development of the University of Wisconsin Donation after Cardiac Death Evaluation Tool" (2003) 13:4 Progress in Transplantation 265 at 270.
24. Lauren Taylor et al, "Harms of Unsuccessful Donation After Circulatory Death: An Exploratory Study" (2017) 18:2 American J Transplantation 402.
25. Michael Shapiro & Frances Ward, "The Problem With DCDD is the Dead Donor Rule" (2015) 15:8 American Journal of Bioethics 15 at 15-16.

III. *Issues with the determination of death*

The question has been previously raised as to whether organ donors are dead at the time of donation.[26] These concerns relate to both the circumstances of cardio-circulatory death and neurological (brain) death. We shall consider these two questions separately.

Regarding circulatory and pulmonary death, the issue raised is whether, at the time of DCDD, the patient is *irreversibly* dead. Logically, one can only be certain that something is irreversible if one attempts, and fails, to reverse it, or if there are unequivocal data demonstrating that attempts in such a circumstance are invariably unsuccessful. Neither of these circumstances exist in the DCDD setting. The data regarding spontaneous restoration of circulation is quite solid; there are no reports of *spontaneous* restoration of cardiac activity and circulation after five minutes.[27] But it is likely that, two to five minutes following circulatory arrest, with an attempt at resuscitation, at least a few of those patients could be resuscitated, and circulation restored, if only temporarily. Of course, this question might also be raised in a patient who arrests with a "do not resuscitate" order. Here, the reason the patient *cannot* be resuscitated is that the decision has been made that the patient *will not* be resuscitated. There has been an extensive literature discussing whether one can substitute the term "permanent" for "irreversible" in the UDDA, and similar international consensus documents, to deal with those instances where cessation of circulatory or brain functions is only "irreversible" because a decision has been made not to attempt to reverse them.[28] Clearly, however, whether one considers circulatory death to be based on an irreversible or permanent cessation of circulation, circulatory death as regularly observed is a social or legal construct, and not a biological one.[29]

A similar problem also exists when one considers death declared on the basis of neurologic criteria. Recall that this requires "irreversible

26. Compare the following, James Bernat, "Point: Are Donors After Circulatory Death Really Dead, and Does it Matter? Yes and Yes" (2010) 138:1 Chest 13; Robert Truog & Franklin Miller "Counterpoint: Are Donors After Circulatory Death Really Dead, and Does it Matter? No and Not Really" (2010) 138:1 Chest 16; Robert Veatch, "Abandon the Dead Donor Rule or Change the Definition of Death?" (2004) 14:3 Kennedy Institute Ethics J 261.

27. Bernat et al, *supra* note 18.

28. Don Marquis, "Are DCD Donors Dead?" (2010) 40:3 Hastings Center Report 24; James Bernat et al, "The circulatory-respiratory determination of death in organ donation" (2010) 38:3 Critical Care Medicine 963; Frankin Miller & Robert Truog, "Rethinking the Ethics of Vital Organ Donations" (2008) 38:6 Hastings Center Report 38; Veatch, RM, Donating Hearts after Cardiac Death—Reversing the Irreversible" (2008) 359:7 N Eng J Med 672; Michael Nair-Collins, "Taking science seriously in the debate on death and organ transplantation" (2015) 45:6 Hastings Center Report 1.

29. Franklin Miller, Robert Truog & Dan Brock, "Moral Fictions and Medical Ethics" (2010) 24:9 Bioethics 453.

cessation of *all* functions of the entire brain including the brain stem."[30] Current criteria for the diagnosis of brain death do not actually measure all functions of the brain or brain stem, but are limited to absence of consciousness, responses to external stimuli, apnea (no respiratory drive), and absence of brain stem reflexes. Some of these individuals, however, have been shown to retain hormonal functions dependent on brain activity, such as regulation of body temperature, maintenance of fluid volume, and even such complex hormonal functions as sexual maturation and maintenance of pregnancy.[31] Further, the argument to equate brain death with death is dependent upon the rationale that the brain is necessary for the integrative functions of the organism as a whole, and therefore its death is tantamount to the death of the entire being. This very concept has been subject to question as well.[32]

A further potential confusion arises from the current United States (California) case, in which the parent of a child (Jahi McMath) declared brain dead in 2013, but whose body has been maintained on a ventilator since that time, has petitioned the court to invalidate the child's certificate of death, and declare that the child "is not now and was never 'brain dead.'"[33] The possibility that the declaration of death by neurologic criteria, after careful examination by a number of expert physicians, could subsequently (four years later) be reversed, indicating either that death had never occurred, or that a patient correctly diagnosed as dead was now alive, would create chaos, not only for the current practice of organ donation and recovery, but for the management of severely brain-injured individuals overall.

Why, then, do we twist ourselves in knots in order to conclude that organ donors are dead at the time of donation? Organ transplantation has always vociferously defended its adherence to the dead donor rule. Society, and physicians, have held that physicians should not participate in killing their patients since at least the time of Hippocrates.[34] This view also dominates the current political landscape. In his book, *The Future of Assisted Suicide and Euthanasia*, Gorsuch (now Associate Justice of the United States Supreme Court) writes, "all human beings are intrinsically valuable and the intentional taking of human life by private persons is

30. See, *supra* note 12 and the text accompanying above.
31. Shewmon 2001, *supra* note 14; Franklin Miller & Robert Truog, *supra* note 14 at 61.
32. Franklin Miller & Robert Truog, *ibid* at 59*ff*.
33. *McMath v California*, 2016 WL 11018782 (ND Cal).
34. Steven H Miles, *The Hippocratic Oath and the Ethics of Medicine* (New York: Oxford University Press, 2004).

always wrong."[35] In attempting to satisfy this widely accepted tenet, in order to avoid the accusation that organ donation involves the intentional killing of the donor, and to maintain public support for organ donation, the biologic fiction that the donor is dead prior to donation (i.e., the DDR) has been maintained. There has been deep suspicion, in some communities, that those involved in organ procurement might somehow short-circuit life-saving attempts for their loved ones by physicians. The organ donation community, probably correctly, has been concerned that any question as to whether potential donors are, in fact, dead would raise more concerns among the public that hospitals were more interested in recovering organs than saving lives.[36]

IV. *Double effect*

Given the belief in the medical community that intentionally ending the life of a patient (i.e., killing), is wrong,[37] what then, is the justification, of the end-of-life procedures involved in the DCDD process, such as removing the breathing tube from the patient's trachea, or providing sedation so that the patient is comfortable throughout the dying process, even if that were to result in some hastening of the death of the patient? These practices have been justified on the basis of the doctrine of double effect (DDE), an important part of Catholic moral philosophy since Thomas Aquinas described it in the late 13th century to justify killing in the act of self-defense, and more recently a concept intrinsic to modern end-of life care.[38] As we shall see however, this concept fails to explain actual behavior, both in the ICU and as part of DCDD. The doctrine of double effect requires four principles to be fulfilled (Table 1).

Table 1

Criteria required for the Principle of Double Effect
1. that the action in itself be good, or at least indifferent
2. that the good effect, and not the evil effect be intended
3. that the good effect not be produced by the evil effect
4. that there be proportionality between the good and evil effect

35. Neil M Gorsuch, *The Future of Assisted Suicide and Euthanasia* (Princeton: Princeton University Press, 2006).

36. Jeffrey M Prottas, "Encouraging Altruism: Public Attitudes and the Marketing of Organ Donation" (1983) 61:2 Milbank Memorial Fund Quarterly. Health and Society 278 at 290.

37. Peter Singer, *Rethinking Life and Death: the Collapse of our Traditional Ethics* (New York: St Martin's Griffin, 1994).

38. Joseph M Boyle Jr, "Toward Understanding the Principle of Double Effect" (1980) 90:4 Ethics 527.

Thus, administering pain medicine to a cancer patient suffering from severe pain is justified, even if it might cause respiratory depression, as long as the goal is pain relief and not the patient's death.[39] There is evidence that, in the setting of advanced cancer, the use of opioids does not accelerate dying,[40] but this may be different from "terminal sedation" in the ICU. In the instance of the removal of life-sustaining therapy, such as the ventilator, either in the usual ICU setting, or in the DCDD process, the good effect is, putatively, relief of the suffering or undue burden caused by the ventilator or the endotracheal tube itself, and that the death of the patient, though foreseen, is neither intended, nor the mechanism through which the suffering is relieved. Death, then, is the natural result of the patient's underlying disease, and not the actions of the physician. Of course, a comatose patient is not suffering from the presence of the endotracheal tube, though it may be argued that the artificial life-prolonging therapy is an assault on the patient's dignity. Thus, removing the ventilator is not so much to relieve suffering (of the patient—it may do so for the family, or of those providing care to the patient), but, in fact, to end the life of the patient.

Given the reliance on the concept of double effect to justify current end-of-life care, and the prohibition against euthanasia in the US and elsewhere, it is worth examining the actual motivation of physicians in such circumstances. The most relevant studies are from Australia. The law has been clear in Australia (and elsewhere) that, in order for palliative care to comport with acceptable standards, administration of medication must be for the purpose of relieving pain, and not intended to cause the death of the patient.[41] However, at least two surveys of physicians in Australia have shown that, often, the hastened death of the patient was the intended goal.[42]

Kuhse, et al, surveyed 3000 doctors randomly selected in specialties where there would be the possibility of making a medical end-of-life decision. Of the respondents who had been involved in a patient death in the previous 12 months, there were 1112 physicians, of whom 800 made a

39. Daniel P Sulmasy, "'Reinventing' the Rule of Double Effect" in Bonnie Steinbock, ed, *The Oxford Handbook of Bioethics* (New York: Oxford University Press, 2007) 114.

40. Nigel Sykes & Andrew Thorns, "The use of opioids and sedatives at the end of life" (2003) 4:5 Lancet Oncology 312.

41. BP White, L Willmott & M Ashby, "Palliative Care, double effect and the Law in Australia" (2011) 41:6 Internal Med J 485.

42. Helha Kuhse et al, "End-of-life decisions in Australian medical practice" (1997) 166:4 Med J Aust 191; Charles D Douglas et al, "The intention to hasten death: a survey of attitudes and practices of surgeons in Australia" (2001) 175:10 Med J Aust 511.

decision intended either to shorten life or foreseen as probably or certainly shortening life. The results of their study are seen here:

Table 2

Of the 800 physicians who reported shortening life:		
Action	*Number*	*Percentage*
Euthanasia	26	3.2%
Ending life without patient's request	51	6.4%
Decision not to treat	289	36.1%
No intention to hasten death	55	19%
Explicit intention to hasten death	234	81%
Alleviating pain with large doses opioids	434	54.2%
No intention to hasten death, with opioids	335	77.2%
Partial intention to hasten death, with opioids	99	22.8%

In a subsequent study, Douglas, et al surveyed 992 general surgeons, with a response rate of 68.9%.[43] When asked, "Have you ever, for the purpose of relieving a patient's suffering, given drugs (orally or parenterally, by bolus or by infusion) in doses *greater* than those required to relieve symptoms, with the intention of hastening the patient's death?" 36.2% answered affirmatively.[44] In response to the question, "Do you believe that there are any circumstances in which it is morally acceptable to give a terminally ill patient sedatives or analgesics by slow intravenous infusion, in doses *greater* than those required to relieve symptoms, with the *intention* of hastening the patient's death?," 54.1% again responded positively.[45]

Thus, in both of these surveys, approximately 30% of physicians reported they had either given drugs or withdrawn or withheld life-sustaining treatments (such as a ventilator) with the explicit purpose of shortening the patient's life. In those settings, the notion that one was "merely" relieving suffering, or "allowing a natural death" was not, in fact true, nor was the DDE applicable. These physicians were intentionally performing an act to end the patient's life. Though in many cases, the act may have also relieved suffering, ending the patient's life was the primary,

43. Douglas et al, *ibid* at 513.
44. *Ibid* at 521.
45. *Ibid.*

not coincident, aim of the act. Similar results have been obtained in studies performed in Europe.[46]

Is it important to make the distinction between providing, at a patient's request, a treatment intended to cause the patient's death (euthanasia), and withdrawing or withholding a treatment, either because the patient finds that treatment burdensome, or because the patient intends the withdrawal of the treatment to cause his death. While euthanasia, in the form of MAiD, is now permissible in Canada under certain circumstances, it is currently illegal in all states in the US, and in many other countries. The distinction between withdrawing therapy and causing death is thus relevant. A change in law would be required in one or more of the United States to permit organ donation as a form of euthanasia. The distinction between "permitting natural death" and "euthanasia," or "causing a patient's death," or less politely, "killing" has been discussed at great length by philosophers and ethicists.[47] The distinction rests, first, on the notion that removing a breathing tube, or turning off the ventilator, is a passive behavior, and death results not from removal of the tube, but rather the patient's underlying disease that causes them to be unable to breathe on their own. Second, the claim that the patient is dying of their underlying disease, rather than the removal of the tube is also suspect. Many patients, such as those with a high spinal cord injury, or with amyotropic lateral sclerosis (ALS, Lou Gehrig's disease) may live for months or even many years with the aid of the ventilator. It is the discontinuation of artificial respiration that results in the death of the patient at the time they die, rather than the disease process. The distinction between permitting natural death, such as employed in DCDD donation, and actively causing death does not stand up to close scrutiny.

V. *Organ donation via medical assistance in dying—Euthanasia*

The preceding arguments make plain that (1) many organ donors, though fulfilling the legal definition of death, are not dead in a biological sense, (2) physicians often intend to hasten death when discontinuing life-sustaining therapies, and thus (3) neither the DDR nor the principle of double effect apply. MAiD might thus be a more transparent approach to the organ donor. How might MAiD be accomplished through the process of organ donation? The Canadian example for MAiD, often defined elsewhere as euthanasia, and not including physician-assisted suicide, might serve as

46. Georg Bosshard et al, "Intentionally hastening death by withholding or withdrawing treatment" (2006) 118:11 Weiner Klinische Wochenschrift 322.

47. See, e.g., FM Kamm, *Bioethical Prescriptions: to Create, End, Choose, and Improve Lives* (New York: Oxford University Press, 2013) at 99-107; Singer, *supra* note 37 at 57-80.

a model. The Canadian law stems from a court opinion. On 6 February 2015, in *Carter v. Canada*, the Supreme Court of Canada declared section 14 and section 241(b) of the *Criminal Code* void

> insofar as they prohibit physician-assisted death for a competent adult person who (1) clearly consents to the termination of life; and (2) has a grievous and irremediable medical condition (including an illness, disease or disability) that causes enduring suffering that is intolerable to the individual in the circumstances of his or her condition. 'Irremediable', it should be added, does not require the patient to undertake treatments that are not acceptable to the individual.[48]

The Court suspended its declaration to allow for Parliament to respond, should it so choose. A legislative committee report was developed and legislation was subsequently promulgated.[49]

One aspect of the Committee report affirmed "that MAID should be able to be performed in any appropriate location, not only in hospitals, including in a person's home."[50] Thus, MAiD could reasonably take place in an operating room. The committee, in ensuring adequate safeguards were in place to avoid coercion, required informed consent, capacity to make the decision, and a request in writing. Clearly, this might limit the available circumstances for MAiD and organ donation, and may, in the future, require change in law. In particular, the recommendation that advance requests not be permitted prior to being diagnosed with the condition responsible for the request for MAiD would preclude those patients suffering from a sudden, unpredicted event (such as a traumatic event or severe stroke), as the event would render them unable to express such a desire. Nonetheless, cases do currently exist that fit the requirements of current legislation (see below).

If practiced, MAiD and organ donation might be performed either sequentially or simultaneously. In the former setting, the patient would be assisted in dying via the administration of a lethal dose of medication or multiple medications, as is current practice with MAiD, death would be pronounced as in traditional DCDD donation, and then rapid organ recovery would be performed.[51] This approach has the advantage over

48. *Carter v Canada (AG)*, *supra* note 1 at para 127.

49. House of Commons, *Medical Assistance in Dying: a Patient-Centred Approach. Report of the Special Joint Committee on Physician-Assisted Dying* (February 2016) (Chairs: Kelvin Kenneth Ogilvie & Robert Oliphant) [*Committee Report*]; *Medical Assistance in Dying Act*, SC 2016, c 3, *supra* note 2.

50. *Committee Report*, *ibid* at 2.

51. J Bollen et al, "Organ Donation After Euthanasia: A Dutch Practical Manual" (2016) 16:7 American J Transplantation 1967.

usual DCDD donation in that the patient's death is assured, the dying process and any possible discomfort are foreshortened, and organ quality improved by preventing a prolonged period of suboptimal blood flow and oxygenation. The patient's family could be present for the death of the patient, though they would not be able to remain after the declaration of death due to the requirement for rapid organ recovery.

A more radical approach, but the procedure advocated in this paper, would be to use the act of organ donation itself as the mode of death of the patient. I do not find anything in current legislation permitting MAiD precluding such an approach, though one might anticipate objections from a number of quarters, not least of which might be the organ donation and transplant community itself. It would also require regulatory changes, as already discussed in the context of imminent death donation, so that these individuals would not be considered living donors, from the perspective of "living donor deaths" which are appropriately intensely scrutinized.

With the use of donation as the mode of death, the patient would be transported to the operating room and anesthetized. The patient's family could accompany the patient, and remain until anesthesia was administered. The organ donation operation would then proceed as for a brain-dead organ donor, other than for the requirement for continued administration of anesthesia. Once all organs had been prepared for removal, the patient would receive a lethal dose of medication simultaneous with the infusion of organ preservative solution. Death would be pronounced based on cardiac standstill, i.e., at the time of organ perfusion.

Clearly, with the proposed technique, the organ recovery itself would function as the medical assistance in dying, though another physician or healthcare provider could actually administer the lethal medication and pronounce death rather than the organ recovery surgeon. Still, one might anticipate much discomfort in the transplant community with this idea. Both transplant surgeons and organ donation professionals have embraced the DDR since the advent of deceased donor transplantation. The discomfort with MAiD, as opposed to current DBD or DCDD protocols, is not grounded in philosophically sound distinctions. Rather, most in the transplant community have accepted DBD and DCDD protocols while rejecting MAiD because they have accepted the moral fiction that all current donors are already dead at the time of organ recovery.[52]

Our proposal here is predicated on the belief that organ donation via MAiD is a more transparent view of current organ donation practices. It is not necessary for such an approach to result in an increase in organs

52. Miller, Truog & Brock, *supra* note 29.

donated. In fact, one might expect criticism if it was believed that this proposal involved ethical slight-of-hand solely to allow for more organs. Nonetheless, recognition of a potential increase in organs recovered may serve the purpose of making such a change in procedure more palatable (as was the case with the Beecher "brain death" report).[53]

There are several ways in which donation via MAiD may increase the number of transplanted organs. It is known that the number of organs recovered per donor from heart-beating organ donors far exceeds that from non-heart-beating donors. This is related to the prolonged lack of oxygen delivery to the tissues that may occur during the dying process. As a result, kidneys, and sometimes livers, are usually recovered and transplanted from DCDD donors, whereas hearts, lungs and pancreas are only rarely transplanted. Although kidney graft survival is equivalent, there is an increased requirement for early dialysis post-transplantation in DCDD donors. Both in North America and in Europe, only an average of two organs are transplanted from each DCDD donor, but a mean of 3.5 organs are transplanted from DBD donors.[54] If organ donation were to proceed following MAiD, allowing for more regular recovery of the liver and potentially other organs from DCDD donors, the time of poor perfusion would be significantly truncated, allowing for more regular recovery of liver and potentially other organs. It might be useful to compare the procedure proposed for MAiD (euthanasia) with that currently used in DCDD donation (Table 3):

Table 3. DCDD Donation vs MAiD by Organ Donation

Current DCDD Protocols	MAiD by Organ Donation
Death occurs, but unpredictably, no organs recovered in 30-50%	Patient alive but anesthetized until organ recovery
Potential for discomfort during the dying process	No potential for discomfort (anesthesia)
Not certain patient is dead at time of organ recovery	Death results from irreversible cessation of cardiac function
Organs Recovered limited to kidneys, sometimes liver, rarely pancreas	Organs recovered might include heart, lungs, liver, kidneys, pancreas, intestine

53. Henry K Beecher et al, "A Definition of Irreversible Coma: Report of the Ad Hoc Committee of the Harvard Medical School to Examine the Definition of Brain Death" (1968) 205:6 JAMA 337.
54. DJ Reiche et al, "ASTS Recommended Practice Guidelines for Controlled Donation after Cardiac Death Organ Procurement and Transplantation" (2009) 9:9 American J of Transplantation 2004.

Thirdly, the availability of organ donation via MAiD might increase the organ donor pool. There are many patients in whom life-sustaining therapy is withdrawn who are not considered for DCDD because they are not expected to die within a timeframe suitable for organ donation. Euthanasia would make such patients viable donation candidates. Additionally, patients not on life-support, but whose lives are intolerable, and are appropriate candidates for MAiD, might also consider themselves for organ donation.

The current regulatory requirement for real-time, first-person consent for MAiD could severely limit potential MAiD candidates. If MAiD is subsequently extended, permitting the use of advanced directives, or surrogate consent, the pool of potential donors would be significantly increased. With appropriate safeguards, such a broadening of the application of MAiD would be ethically appropriate.

An actual clinical case, well-publicized in the US, might serve as a useful example. The patient was a 44 year-old man with ALS, awake and alert on a ventilator, with no spontaneous respiratory ability. He could not move any part of his body, except his eyes. "I was always interested in organ donation and had checked the box on my license," the patient said through a machine that spoke for him.[55] The patient expressed that life was intolerable, and wished to come off the ventilator and be allowed to die. He also wished to donate his organs, and had frequently discussed both of these viewpoints with his spouse and with his physicians. Clearly this patient had several goals: to have control over the time and manner of his death, to have as comfortable a death as possible, and to donate organs. There was no medical uncertainty about the patient's rapid death once the ventilator was disconnected. There was also no question that the patient was not imminently dying, and might have lived for a prolonged period, had he remained on the ventilator. The patient could have died at home, but that would have precluded organ donation. He needed to be admitted to the hospital to have his wish granted. This proved impossible in the hospital where he had been receiving his care because, although the request was approved by the hospital ethics committee, it was stopped by the hospital's lawyers because of concerns that "it looked too much like assisted suicide."[56] Even so, his only option under current US law was to become a DCDD donor, which he ultimately did at different hospital, donating both his liver and kidneys. Had he been allowed to undergo organ

55. Karen Shakerdge, "A Dying Man's Wish to Donate His Organs Gets Complicated," *National Public Radio* (26 December 2016), online: <www.npr.org> [perma.cc/2HJ4-PNUJ].
56. *Ibid.*

donation via MAiD, he would have still retained control over his death, his comfort would have been assured, and he may well have also been able to donate an additional four organs.

Are there negative aspects of MAiD via organ donation in comparison to how MAiD is currently performed? In the absence of the desire for organ donation, MAiD can take place at home, in a familiar, comfortable setting, surrounded by family and loved ones. Family members may remain with the patient after death, if desired. These comforting options are quite limited if organ donation is to occur in the setting of MAiD, but this is not different whether MAiD is followed by DCDD donation, or whether donation is itself the mechanism of MAiD (Table 4). These limitations are based on the requirement to limit the elapsed time between the loss of oxygen flowing to the organs to be recovered, and their actual recovery. Patients, and their families, will need to balance these intrusions with the emotional benefit associated with organ donation.

Table 4. Current MAiD (Euthanasia vs Euthansia by Organ Donation)

Current Euthanasia policy	**Euthanasia by Organ Donation**
Can take place at home	Must take place in hospital
Family present, if desired	Family must say goodbye after induction of anesthesia
Death by pharmacologic means	Anesthesia induced prior to beginning operation.
No discomfort	No discomfort
Family can stay with patient after death	Family could reunite with patient after surgery completed

Certainly, changing the public's perception of organ donation from one of removing organs from one who has already died to that of causing the death of an individual by organ donation may require some adjustment, and could impact the current willingness of some to become donors, or to donate their loved ones' organs. However, many studies over the past 20 years continue to demonstrate confusion on the part of the public, and even medical professionals, about both the criteria for the diagnosis of brain death, and whether brain dead, but heart-beating individuals are actually dead.[57] It is still not unusual to encounter physicians in the US who believe, erroneously, that DCDD procedures include the removal of organs prior to withdrawal of life-sustaining interventions, with subsequent termination of life-sustaining therapy and pronouncement. Any significant change in

57. James M Dubois & Emily E Anderson, "Attitudes toward death criteria and organ donation among healthcare personnel and the general public" (2006) 16:1 Progress in Transplantation 65.

organ retrieval practices would, therefore, require an extensive public and professional education effort.

Conclusion

The increasing acceptance, at least in some countries, of active euthanasia (termed Medical Assistance in Dying in Canada) for those with intolerable suffering, has created an opportunity to re-examine the current methods for the determination of death, especially in the context of organ donation. It permits consideration of an alternative approach to the moral dilemma arising from the need to recover organs for transplantation, on the one hand, and concerns about whether all current organ donors are actually dead, thus violating the dead donor rule, on the other. The organ donation community has, since early in the history of transplantation, engaged in what Miller, Truog and Brock have termed "moral fictions."[58] The fictions help us deal with the cognitive dissonance that results from the conflict between our moral beliefs and our behaviors. These fictions have reassured both transplant professionals, who do not wish to feel they are responsible for the death of their donors, and the public at large. But they are fictions nonetheless. There is no urgent need to change the procedures currently used for organ recovery, though there are multiple benefits to considering the use of voluntary active euthanasia. It is time, though, for an honest discussion in transplant circles, and in society at large, about providing patients and families with the best care at the end-of-life, in a way that is both respectful of the patient, and of benefit to society.

58. *Supra* note 29.

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